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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,122	08/29/2000	Mitsusuke Kyogoku	ASMJP.062AUS	9091

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EXAMINER	
KACKAR, RAM N	

ART UNIT	PAPER NUMBER
1763	6

DATE MAILED: 07/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/650,122	Applicant(s) KYOGOKU ET AL.	
	Examiner Ram N Kackar	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If the period for reply specified above is, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,3-8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims1, 3-4, 6-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams (US Patent 6959507) in view of Hautau (US Patent 4134305) and Predhome Jr (US Patent Re 30188). With regard to claim1, Adams discloses a multi-chamber load locking device divided in to an upper chamber (Fig2-34) a lower chamber (Fig2-38) and an intermediate section located between the upper chamber and the lower chamber (Fig2-36), a divider plate (Fig2-73) having an upper side and a lower side both of which are adapted to support wafers (Fig2-66 and68). The plate (Fig2-73) moves reciprocally between an upper position and a lower position. When the plate is at upper position the plate divides and seals the upper chamber from intermediate section and lower chamber (fig2-38). When the plate is at lower position the plate divides and seals the lower chamber from intermediate section and upper chamber (Fig2-34). Adam discloses seals (Fig2-58 and 60) and doors on all openings. In addition to the single divider plate Adam discloses two other redundant plates. It would have been obvious to eliminate those two redundant plates to reduce cost. Adam does not disclose the plate lift mechanism of cylindrical cam structure and a rotary actuator. Hautau (US Patent 4134305) discloses a cylindrical cam structure (Fig 4-114) whose rotation causes a vertical movement of cam follower (Fig 4-124). Predhome Jr discloses cam follower as part of a cylindrical body

coaxial with the cam structure. (Fig 5 -82). Thus Hautau teaches a mechanism to convert a rotary motion to a linear motion which is lot simpler, cheaper and reliable to use and provides higher through put. Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to install a mechanism of cam groove and cam follower to Adam's load lock to provide for the reciprocal motion of the divider plate.

With regard to claim 3, Predhome Jr discloses a cam cylinder having a cam groove having a shape which can be divided in five sections (i) upper horizontal (ii) lower horizontal (iii) intermediate section (iv) upper transition section and (v) lower transition section to make sure that while the plate is going towards sealing to any position it moves slowly and the transition from higher speed of intermediate section to low speed of sealing is smooth (Fig 5-54). Therefore, it would have been obvious to one having ordinary skill in the art at the time invention was made to shape the groove so as to provide smooth motion before sealing and avoid any generation of particulates.

With regards to claim 4, Hautau (US Patent 4134305) discloses a cylindrical cam structure (Fig4-114) and a cam follower, which slides on a beam (Fig 4- 122) to act as a guide for up/down movement. Therefore it would have been obvious to one having ordinary skill in the art to provide a beam for guidance to the lifting mechanism adapted for Adam's load lock device.

With regards to claim 6 references to first or second pressure in the claim appears to be for an intended use and does not structurally distinguish over prior art of Adam.

With regards to claim 7, Adam has disclosed an interface of doors (Col 4 line 16) which can go on openings (Fig 2-40 and 44) which makes it adaptable to be disposed between a loading station and a transfer chamber (Fig 2, Fig 1-26, 28).

With regards to claim 8, as discussed in claim 7 for the location of the load locks and the structure as discussed in claim 1, Adam's load lock as modified by Hautau and Predhome Jr. discloses all the limitations of this claim.

With regards to claim 11, Hautau and Predhome Jr have both disclosed a generally S shaped groove, which controls the speed at start, stop and intermediate movement. The transitions are so smooth and gradual that it is hard to say when one region stops and the other begins. More over these are apparatus specific adjustments and have no patentable significance.

Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams (US Patent 6959507) in view of Hautau (US Patent 4134305) and Predhome Jr (US Patent Re 30188) as applied to claims 1 and 8 and further in view of Phillips et al (US Patent 4889319). Adams discloses seals on his multi-chamber load-locking device but does not disclose that the seals are O-ring seals. O-ring seals are well known in the art as disclosed by Phillips et al (Col 1-31). Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to use O ring seals on Adam's load lock to provide for the reliable seal, O-ring seals are known for.

Response to Amendment

Applicants arguments filed on 6/27/2002 have been considered but not found to be persuasive. Examiners response is summarized as below:

1 Adam discloses three sections and essentially uses single divider plate. The other two plates being redundant, could obviously be eliminated.

2 Actual pressure or pressure differential is related to intended use and does not impart patentability. The apparatus discloses by Adam is capable of creating and maintaining pressure differential.

3 The motivation for using lifting mechanism as taught by Hautau and Predhome Jr would be its speed, economy, simplicity and reliability. Any mechanism to convert rotary to linear motion, for example a ball screw with an attached rotary drive, will also resist any motion out of sealed position when resting at one of the stops.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
July 18, 2002

GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700